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NASA Procedural Requirements

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NPR 8715.3C

Effective Date: March
12, 2008

Expiration Date:
March 12, 2013

[Printable Format \(PDF\)](#)

Request Notification of Change

(NASA Only)

Subject: NASA General Safety Program Requirements (w/Change 7 dated 2/25/11)

Responsible Office: Office of Safety and Mission Assurance

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Chapter 5. Fire Safety

5.1 Purpose, Goals, and Objectives

5.1.1 This chapter establishes the overall requirements for the NASA Fire Safety Program. The goals of this program are zero loss of life from fires, a reduction in number of fires to zero, protection for facilities and equipment to preclude major losses, and a reduction in the magnitude of loss for those fires that occur. The objective of NASA fire safety policy is to protect human life, property, and the environment from the risk of fire-related hazards.

5.1.2 Each NASA Center should develop and aggressively pursue a Fire Safety Program with the primary goal to reduce or eliminate the potential for fires through the application of effective fire prevention techniques and by heightening the fire safety awareness of all NASA and contractor personnel.

5.1.3 Requirements for fire safety are provided in 40 U.S.C. S 3312, Compliance with Nationally Recognized Codes, 29 CFR Part 1910 Subpart L, Fire Protection, 29 CFR Part 1910.38, Employee Emergency Plans, and 29 CFR Part 1910.39, Fire Prevention Plans.

5.2 Responsibilities

5.2.1 Director, Safety and Assurance Requirements Division, shall:

- a. Provide advocacy for fire protection for Construction of Facilities (CoF) projects (Requirement).
- b. Support NASA Center budget submittals for fire protection, fire suppression, and fire research (Requirement).
- c. Review NASA Center fire safety programs (Requirement).

5.2.2 Center Directors shall:

- a. Be responsible for identifying and reducing fire risks, ensuring fire safety of Center operations, and implementing the requirements of this chapter ([Requirement 32520](#)).
- b. Implement a comprehensive fire safety program at their Center and facilities in accordance with specific program requirements and procedures given in NASA-STD-8719.11, Safety Standard for Fire Protection ([Requirement 25197](#)).
- c. Ensure that the fire safety program complies with National Fire Protection Association standards including their appendices, unless the requirements of local codes are more stringent; nationally recognized building and fire safety codes and requirements; and local building and fire codes and requirements ([Requirement 32541](#)).
- d. Ensure implementation of NASA operational fire safety procedures ([Requirement 32521](#)).
- e. Ensure each Center adopts, implements, and trains in the use of the Incident Management System in accordance with NFPA 1561, Standard on Emergency Services Incident Management System and the National Incident Management System, when responding to and managing any emergency or disaster (Requirement).
- f. Ensure that the Center Security Office is notified of all fires that are suspicious in nature (Requirement).
- g. Ensure that employees, other than trained professional firefighters, trained volunteers, or emergency response personnel, do not fight fires except in cases where the fire is incipient in nature (Requirement).
- h. Ensure that compliance with NASA-STD-8719.11, Safety Standard for Fire Protection, is made part of contractual requirements at NASA Centers with contractors performing work as deemed necessary by the CO and the responsible NASA Center fire safety program office (Requirement).
- i. Appoint, in writing, an Authority Having Jurisdiction (AHJ) for NASA fire protection ([Requirement 32522](#)).

Note: The Center SMA Director should interface directly with the Center Director concerning Fire Safety Officer activities.

5.2.3 The AHJ shall:

- a. Be a safety or fire protection professional with requisite skills and knowledge ([Requirement 32523](#)).

Note: For specific responsibilities of the AHJ, refer to NASA-STD-8719.11, Safety Standard for Fire Protection.

- b. Designate personnel responsible for the investigation of all fires at their Center and facilities (Requirement).
- c. Perform a risk assessment and determine on a case-by-case basis the need to incorporate newer requirements and standards into existing facility and equipment operating procedures when standards are updated and superseded by newer, more stringent requirements ([Requirement 32533](#)).

5.3 Fire Safety Program

5.3.1 Center Directors shall ensure that the implementation of an effective fire safety program at their Center complies with the following minimum requirements:

- a. Requirements are established for a reasonable level of fire safety and property protection from the hazards created by fire and explosions in accordance with NFPA 1, Uniform Fire Code (Requirement).
- b. An appropriate level of fire service operations is provided to protect lives and property based on the size and mission of the Center (Requirement).
- c. Risk management processes are applied in order to assess individual programs and adopt additional fire safety requirements (Requirement).
- d. Fire hazards are identified through documented annual engineering surveys, fire inspections, and comprehensive fire risk evaluations ([Requirement 32526](#)).
- e. Fire safety discrepancies are documented and abatement plans prepared for corrective action(s) and tracking ([Requirement 25199](#)).
- f. Fire safety discrepancies that cannot be corrected or funded locally are forwarded to Headquarters for resolution ([Requirement 32525](#)).
- g. Fire safety violations are reviewed and corrected (e.g., work orders for repair, construction, follow-up, and acceptance).
- h. All project design criteria, conceptual plans, and design documents with life safety and/or fire protection/prevention implications are reviewed and approved ([Requirement 32524](#)).
- i. CoF projects are reviewed for fire safety and protection (Requirement).
- j. Procedures are in place for control of flammable materials and hazardous operations (Requirement).
- k. Automatic fire detection and suppression systems for all facilities containing significant hazards, mission essential equipment, or permanently housed personnel are in place (Requirement).
- l. Requirements are established for life cycle review and replacement for fire suppression and protection equipment (Requirement).
- m. Requirements are established for proper functioning of the Center Fire Department and/or coordination with the responsible local fire department (Requirement).
- n. Procedures are in place and reviewed for reporting and investigating fires (Requirement).

- o. Emergency action plans and a Center fire safety program plan are developed and reviewed (Requirement).
- p. Assistance is available for assuring the adequacy of fire design and code compliance from a contractual and cost benefit standpoint for major construction projects (Requirement).
- q. Facility design drawings are reviewed for inclusion of adequate fire protection features and systems and for compliance with applicable codes and criteria (Requirement).
- r. All contract documents are reviewed for fire protection specifications (Requirement).

5.4 Fire Protection Systems

5.4.1 Fire Protection Doctrine

The nature of NASA's mission is such that a significant number of specialized facilities and operations exist along with more conventional structures and work routines. As a result, difficulties arise in the determination of the required level of fire safety. In most instances, conventional fire protection doctrine and existing codes and standards are appropriate. However, specialized facilities may have fire risks not specifically addressed by conventional means. In those instances, safeguards can be assured by following the requirements contained in this document and in NASA-STD-8719.11, Safety Standard for Fire Protection.

5.4.2 Extinguishing Systems

5.4.2.1 Center Directors shall ensure that:

- a. Extinguishing systems and fire extinguishers comply, as a minimum, with the NFPA codes and standards ([Requirement 32528](#)).
- b. All fire protection equipment are Underwriter Laboratories (UL) listed, Factory Mutual (FM) or Canadian Safety approved ([Requirement 32529](#)).

5.5 Firefighting

5.5.1 Firefighting organizations may be established or provided from outside sources to ensure adequate protection to life and property.

5.5.2 Center Directors shall ensure that:

- a. NFPA recommendations and OSHA regulations are used for determining type, size, and training of firefighting organizations ([Requirement 25201](#)).
- b. Firefighting organizations are equipped with sufficient amount of firefighting vehicles and equipment to combat anticipated fires (Requirement).
- c. Agreed-upon arrangements with external agencies to provide NASA with fire protection services are documented and retained on file ([Requirement 32530](#)).

5.6 Emergency (Pre-Fire) Planning and Procedures

Specialized facilities and critical areas that constitute a major portion of NASA operations

demand a unique, pre-planned response from the entire Agency. See NPD 8710.1, Emergency Preparedness Program, NASA-STD-8719.11, Safety Standard for Fire Protection, and respective emergency preparedness plans for further information on specific critical areas and emergency plan procedures.

5.7 Fire Safety Training

5.7.1 Center Directors shall ensure that fire safety training for NASA employees is conducted in accordance with the requirements contained in Chapter 7 of this NPR ([Requirement 25203](#)).

5.8 Reporting

5.8.1 Center Directors shall ensure that:

a. Reporting is an integral part of the fire safety program ([Requirement 25204](#)).

Note: Effective reporting procedures disseminate the knowledge and experience gained by one Center to the rest of NASA and the Federal Government.

b. Investigation of fire-related mishaps is in accordance with NFPA 921, Guide for Fire and Explosion Investigations, in addition to NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping ([Requirement 32531](#)).

Note: Requirements for mishap investigation, reporting, and recordkeeping are provided in NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

5.9 Current Regulations, Codes, and Standards and Variances

5.9.1 With the goal of protecting life and property, Center Directors shall comply with the most current fire requirements in the design, construction, and operation of all NASA buildings and structures ([Requirement 25205](#)).

Note: Existing buildings and facilities do not automatically need to implement all code upgrades.

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